

AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph beginning on page 2, line 19, with the following rewritten paragraph:

The recording position information is various kinds of address information in the recording area of the DVD, for example, a header address and an end address of the area where the coded data of the VOBs corresponding to the title is recorded, or an address indicating the search point which has previously been set by the user.

Please replace the paragraph beginning on page 4, line 6, with the following rewritten paragraph:

Meanwhile, there is the MPEG coding as an international standard of a compressive coding method for a video signal (hereinafter also referred to as image data). In the MPEG coding, the process of coding the image data is adaptively switched between ~~the~~ intra-frame coding in which the image data is coded using a ~~the~~ correlation of pixel vales in one frame, and ~~the~~ inter-frame coding in which the image data is coded using ~~the~~ a correlation of pixel values between frames. In the MPEG coding, the coded data corresponding to continuous plural frames are regarded as one unit, and the image comprising the continuous plural frames is called a group of pictures (GOP).

Please replace the paragraph beginning on page 7, line 8, with the following rewritten paragraph:

In the field of television broadcasting, CS (Communication Satellite) broadcasting takes the lead in digitization, and digital broadcasting of a high-vision TV signal will be started subsequent to digital broadcasting of a standard TV signal. Accordingly, it is supposed that a

standard TV signal and a high-vision TV signal will coexist in one broadcast sequence, or an interlace signal and a progressive signal will coexist in one broadcast sequence. In this case, the video resolutions of the TV signals which are broadcast in the same broadcast sequence[[,]] will change at with a change of a program.

Please replace the paragraph beginning on page 22, line 6, with the following rewritten paragraph:

According to a third aspect of the present invention, in the recording apparatus of the first aspect, the attribute detector detects the video resolution of the video signal as an attribute relating to the video signal, and outputs video resolution data indicating the video resolution. On ~~on~~ the basis of the video resolution data, the information generator detects a recording position in the stream recorded on the recording medium, which recording position corresponds to a point where the video resolution changes, or a recording time of the stream based on a reference time, which recording time corresponds to the video resolution change point, and outputs attribute change information indicating the recording position or the recording time; and the recorder records the video resolution data and the resolution change information on the recording medium. Therefore, when playing the audio video stream, a portion of the stream where the video resolution changes can be accessed quickly.

Please replace the paragraph beginning on page 22, line 22, with the following rewritten paragraph:

According to a fourth aspect of the present invention, in the recording apparatus of the first aspect, the attribute detector detects the aspect ratio of the video signal as an attribute

relating to the video signal, and outputs aspect ratio data indicating the aspect ratio. ~~On~~ ^{On} on the basis of the aspect ratio data, the information generator detects a recording position in the stream recorded on the recording medium, which recording position corresponds to a point where the aspect ratio changes, or a recording time of the stream based on a reference time, which recording time corresponds to the aspect ratio change point, and outputs aspect ratio change information indicating the recording position or the recording time; and the recorder records the aspect ratio data and the aspect ratio change information on the recording medium. Therefore, when playing the audio video stream, a portion of the stream where the aspect ratio changes can be accessed quickly.

Please replace the paragraph beginning on page 23, line 13, with the following rewritten paragraph:

According to a fifth aspect of the present invention, there is provided a recording apparatus for recording, on a recording medium, an audio video stream which is obtained by coding an audio video signal including an audio signal and a video signal. This apparatus comprises: a packing unit for performing packing to divide the audio video stream into plural streams corresponding to packs as data units each having a predetermined size, and outputting the audio video stream corresponding to each pack as pack data; a recorder for recording each pack data on the recording medium, as an access unit to the recording medium; and an attribute detector for detecting an attribute relating to at least one of the video signal and the audio signal, and outputting attribute data indicating the attribute. The packing unit performs the packing such that a position in the audio video stream, where the attribute changes, is positioned at the head of

the pack. Therefore, a portion where the video attribute or the audio attribute changes, of the audio video stream whose recording addresses are managed in pack units, can be recognized. When playing the audio video stream, the portion ~~portion~~ where the attribute change occurs can be accessed quickly.

Please replace the paragraph beginning on page 28, line 18, with the following rewritten paragraph:

According to a fourteenth aspect of the present invention, in the recording apparatus of the tenth aspect, the attribute detector detects the aspect ratio of the video signal as an attribute relating to the video signal, and outputs aspect ratio data indicating the aspect ratio; and when the aspect ratio ~~ration~~ changes, the video object composer divides the video stream, on the basis of the aspect ratio data, such that a portion of the video stream before the aspect ratio change point and a portion of the video stream after the aspect ratio change point are output as different video object data. Therefore, the aspect ratio can be unified with respect to one video object data. Thereby, when playing the audio video stream recorded on the recording medium, decoding of each video object data can be performed on the basis of the aspect ratio which is managed in video object units.

Please replace the paragraph beginning on page 39, line 7, with the following rewritten paragraph:

The recording apparatus 100a further includes a recording signal processor 104 ~~110~~ and a recording head 105. The recording signal processor 104 ~~110~~ subjects the VOB data Dvob from the VOB composer 103 and the VMG information Dvmg from the VMG generator 110 to

addition of error correcting code and recording modulation, and outputs a recording signal Sre corresponding to the VOB data. The recording head 105 writes the recording signal Sre on the recording medium 106 such as an optical disk.

Please replace the paragraph beginning on page 45, line 11, with the following rewritten paragraph:

The padding size generator 113 receives the video attribute data Dva, the audio attribute data Daa, and the internal signal Sop indicating the packing state in the packing unit 112. When the video attribute or the audio attribute changes, the padding size generator 113 calculates the size of padding data, and outputs the size information Dps indicating the data size. To be specific, when the packing unit 112 detects an attribute change while storing the stream (video stream or audio stream) in a specific pack, the padding size generator 113 calculates the vacant space of this pack at this point of time[[,]] as the size of padding data.

Please replace the paragraph beginning on page 57, line 20, with the following rewritten paragraph:

In the VOB composer 103b ~~103~~, a predetermined number of audio packs and video packs equivalent to a predetermined display time are put together as a VOB (third data unit). Then, VOB data Dvob, which comprises a plurality of VOBUs equivalent to the audio video stream Sav inputted from the start of recording to the end of recording, is generated.

Please replace the paragraph beginning on page 63, line 13, with the following rewritten paragraph:

The recording apparatus 100g includes an aspect ratio detector 107g and an address information generator 108g instead of the video resolution detector 107d and the address information generator 108d according to the fourth embodiment, respectively. The aspect ratio detector 107g receives an audio video stream Sav, detects the aspect ratio of the video stream included in the audio ~~vide~~ video stream Sav by analyzing the header information of the video stream, and outputs data Dar indicating the aspect ratio. The address information generator ~~108d~~ 108g generates specific address information Isa indicating the write address at the time when the aspect ratio changes, on the basis of the output Dar from the detector 107g and the write address information Iwa from the system controller 111. The specific address information Isa and the aspect ratio data Dar are output to the VMG generator ~~110~~ 110d. Other constituents of the recording apparatus 100g are identical to those of the recording apparatus 100d according to the fourth embodiment.

Please replace the paragraph beginning on page 66, line 20, with the following rewritten paragraph:

The recording apparatus 100h of this eighth embodiment includes an aspect ratio detector 107g and an address information generator 108g instead of the video resolution detector 107d and the address information generator 108d according to the fifth embodiment. The aspect ratio detector 107g receives an audio video stream Sav, detects the aspect ratio of the video stream included in the audio ~~vide~~ video stream Sav by analyzing the header information of the video stream, and outputs data Dar indicating the aspect ratio. The address information generator 108d generates specific address information Isa indicating the write address at the time when the

aspect ratio changes, on the basis of the output Dar from the detector 107g and the write address information Iwa from the system controller 111. The specific address information Tsa and the aspect ratio data Dar are output to the VMG generator 110d, and the aspect ratio data Dar is output to the packing unit 112 and the padding size generator 113. Other constituents of the recording apparatus 100g are identical to those of the recording apparatus 100e according to the fifth embodiment.

Please replace the paragraph beginning on page 80, line 21, with the following rewritten paragraph:

As described above, the coding apparatus 100j of this tenth embodiment is provided with the coding controller 126 for deciding that either intra-frame coding or inter-frame coding is performed on the video signal Svi of each frame, on the basis of the video attribute data Dva and the audio attribute data Daa, and the prediction mode controller 127 for controlling the prediction mode of inter-frame coding on the basis of the attribute data Dva and Daa. When the attribute or the audio attribute changes, the coding mode and the prediction mode are controlled so that the head of the stream after the attribute change is matched to the head of the stream constituting the GOP and, further, a frame included in a GOP whose attribute is different from that of the GOP including the target frame is not used as a reference frame. Therefore, a video signal whose video attribute (e.g., coding mode, video resolution, or video aspect ratio) changes[[,]] can be coded according to the coding method based on MPEG.

Please replace the paragraph beginning on page 81, line 20, with the following rewritten paragraph:

Further, since a frame included in a GOP whose video or audio attribute is ~~difference~~ different from that of the target frame is not used as a reference frame for the target frame, independent coding or decoding can be performed on each of the GOPs before and after the attribute change point and, therefore, coding and decoding can be performed without failure even when the video or audio attribute changes.